## June 6, 2005

Hazardous, Toxic and Radioactive Waste Center of Expertise

Mike Schmitt STL Denver 4955 Yarrow Street Arvada, CO 80002

Dear Mr. Schmitt:

This correspondence addresses the recent evaluation of STL Denver of Arvada, CO for the U.S. Army Corps of Engineers (USACE) for radiological analysis in support of the USACE Hazardous, Toxic and Radioactive Waste Program.

Your laboratory is now validated for the parameters listed below:

METHOD <sup>(1)</sup>	PARAMETERS	MATRIX <sup>(2)</sup>
300.0/9056	Anions <sup>(5)</sup>	Water <sup>(3)</sup>
300.0/9056	Anions <sup>(5)</sup>	Solids <sup>(3)</sup>
1664A	Oil and Grease (HEM)	Water <sup>(3)</sup>
9071B	Oil and Grease (HEM)	Solids <sup>(6)</sup>
9010B/9012A	Cyanide	Water <sup>(3)</sup>
9010B/9012A	Cyanide	Solids <sup>(3)</sup>
3535/8330	Explosives	Water <sup>(6)</sup>
8330	Explosives	Solids <sup>(3)</sup>
3535/8321A	Explosives	Water <sup>(6)</sup>
8321A	Explosives	Solids <sup>(3)</sup>
8151A	Herbicides	Water <sup>(3)</sup>
8151A	Herbicides	Solids <sup>(3)</sup>
9071B	Oil & Grease	Solids <sup>(3)</sup>
3510C/8081A	Organochlorine Pesticides	Water <sup>(3)</sup>
3550B/8081A	Organochlorine Pesticides	Solids <sup>(3)</sup>
3510C/8082	Polychlorinated Biphenyls	Water <sup>(3)</sup>
3550B/8082	Polychlorinated Biphenyls	Solids <sup>(3)</sup>
3510C/8310	Polynuclear Aromatic Hydrocarbons	Water <sup>(3)</sup>
3550B/8310	Polynuclear Aromatic Hydrocarbons	Solids <sup>(3)</sup>

3550B/8270C         Semivolatile Organics         Solids <sup>(3)</sup> 3010A/6010B/7470A         TAL Metals <sup>(4)</sup> Water <sup>(3)</sup> 3050B/6010B/7471A         TAL Metals <sup>(4)</sup> Solids <sup>(3)</sup> 3020A/6020         TAL Metals <sup>(4)</sup> Water <sup>(3)</sup> 3050B/6020         TAL Metals <sup>(4)</sup> Solids <sup>(3)</sup> 9060         Total Organic Carbon         Water <sup>(3)</sup> 9060 Mod         Total Organic Carbon         Solids <sup>(6)</sup> 3510C/Mod 8015         TPH – DRO         Water <sup>(3)</sup> 3550B/Mod 8015         TPH – DRO         Solids <sup>(3)</sup> 5030B/Mod 8015         TPH – GRO         Water <sup>(3)</sup> 5035/Mod 8015         TPH – GRO         Water <sup>(3)</sup> 5030B/8260B         Volatile Organics         Solids <sup>(3)</sup> 5035/8260B         Volatile Organics         Solids <sup>(3)</sup> DEN-RAD-0009         Gamma Emitting Radionuclides         Water <sup>(6)</sup> DEN-RAD-0009         Gamma Emitting Radionuclides         Solids <sup>(6)</sup> DEN-RAD-0004         Americium, Plutonium, Thorium, and Uranium by Alpha Spectrometry         Solids <sup>(6)</sup> DEN-RAD-0005         Calibration, Use and Maintenance of the Alpha Spectrometer           DEN-RAD-0007         Redium 236 in Weter by Brasinit	3520C/8270C	Semivolatile Organics	Water <sup>(3)</sup>
3050B/6010B/7471A         TAL Metals <sup>(4)</sup> Solids <sup>(3)</sup> 3020A/6020         TAL Metals <sup>(4)</sup> Water <sup>(3)</sup> 3050B/6020         TAL Metals <sup>(4)</sup> Solids <sup>(3)</sup> 9060         Total Organic Carbon         Water <sup>(3)</sup> 9060 Mod         Total Organic Carbon         Solids <sup>(6)</sup> 3510C/Mod 8015         TPH – DRO         Water <sup>(3)</sup> 3550B/Mod 8015         TPH – GRO         Water <sup>(3)</sup> 5030B/Mod 8015         TPH – GRO         Water <sup>(3)</sup> 5035/Mod 8015         TPH – GRO         Solids <sup>(3)</sup> 5030B/8260B         Volatile Organics         Water <sup>(3)</sup> 5035/8260B         Volatile Organics         Solids <sup>(3)</sup> DEN-RAD-0009         Gamma Emitting Radionuclides         Water <sup>(6)</sup> DEN-RAD-0009         Gamma Emitting Radionuclides         Solids <sup>(6)</sup> DEN-RAD-0004         Americium, Plutonium, Thorium, and Uranium by Alpha Spectrometry         Solids <sup>(6)</sup> DEN-RAD-0005         Calibration, Use and Maintenance of the Alpha Spectrometer	3550B/8270C	Semivolatile Organics	Solids <sup>(3)</sup>
3020A/6020         TAL Metals <sup>(4)</sup> Solids <sup>(3)</sup> 9060         Total Organic Carbon         Water <sup>(3)</sup> 9060 Mod         Total Organic Carbon         Solids <sup>(6)</sup> 3510C/Mod 8015         TPH – DRO         Water <sup>(3)</sup> 3550B/Mod 8015         TPH – DRO         Solids <sup>(3)</sup> 5030B/Mod 8015         TPH – GRO         Water <sup>(3)</sup> 5035/Mod 8015         TPH - GRO <sup>(7)</sup> Solids <sup>(3)</sup> 5030B/8260B         Volatile Organics         Water <sup>(3)</sup> 5035/8260B         Volatile Organics         Solids <sup>(3)</sup> DEN-RAD-0009         Gamma Emitting Radionuclides         Water <sup>(6)</sup> DEN-RAD-0004         Americium, Plutonium, Thorium, and Uranium by Alpha Spectrometry         Water <sup>(6)</sup> DEN-RAD-0005         Calibration, Use and Maintenance of the Alpha Spectrometer         NA <sup>(6)</sup>	3010A/6010B/7470A	TAL Metals <sup>(4)</sup>	Water <sup>(3)</sup>
3050B/6020 TAL Metals <sup>(4)</sup> Solids <sup>(3)</sup> 9060 Total Organic Carbon Water <sup>(3)</sup> 9060 Mod Total Organic Carbon Solids <sup>(6)</sup> 3510C/Mod 8015 TPH – DRO Water <sup>(3)</sup> 3550B/Mod 8015 TPH – DRO Solids <sup>(3)</sup> 5030B/Mod 8015 TPH – GRO Water <sup>(3)</sup> 5035/Mod 8015 TPH – GRO Water <sup>(3)</sup> 5035/Mod 8015 TPH – GRO 5035/Mod 8015 TPH – GRO 5035/Mod 8015 TPH – GRO 5035/Mod 8015 Solids <sup>(3)</sup> 5030B/8260B Volatile Organics Water <sup>(3)</sup> 5035/8260B Volatile Organics Solids <sup>(3)</sup> DEN-RAD-0009 Gamma Emitting Radionuclides Water <sup>(6)</sup> DEN-RAD-0009 Gamma Emitting Radionuclides Solids <sup>(6)</sup> DEN-RAD-0004 Americium, Plutonium, Thorium, and Uranium by Water <sup>(6)</sup> Alpha Spectrometry DEN-RAD-0005 Calibration, Use and Maintenance of the Alpha Spectrometer	3050B/6010B/7471A	TAL Metals <sup>(4)</sup>	Solids <sup>(3)</sup>
9060 Total Organic Carbon Water <sup>(3)</sup> 9060 Mod Total Organic Carbon Solids <sup>(6)</sup> 3510C/Mod 8015 TPH – DRO Water <sup>(3)</sup> 3550B/Mod 8015 TPH – DRO Solids <sup>(3)</sup> 5030B/Mod 8015 TPH – GRO Water <sup>(3)</sup> 5035/Mod 8015 TPH – GRO Water <sup>(3)</sup> 5035/Mod 8015 TPH – GRO Water <sup>(3)</sup> 5035/Mod 8015 TPH – GRO Water <sup>(3)</sup> 5030B/8260B Volatile Organics Water <sup>(3)</sup> 5035/8260B Volatile Organics Solids <sup>(3)</sup> DEN-RAD-0009 Gamma Emitting Radionuclides Water <sup>(6)</sup> DEN-RAD-0009 Gamma Emitting Radionuclides Solids <sup>(6)</sup> DEN-RAD-0004 Americium, Plutonium, Thorium, and Uranium by Water <sup>(6)</sup> Alpha Spectrometry  DEN-RAD-0005 Calibration, Use and Maintenance of the Alpha NA <sup>(6)</sup> Spectrometer	3020A/6020	TAL Metals <sup>(4)</sup>	Water <sup>(3)</sup>
9060 Mod  3510C/Mod 8015  TPH – DRO  3550B/Mod 8015  TPH – DRO  Solids <sup>(3)</sup> 5030B/Mod 8015  TPH – GRO  Water <sup>(3)</sup> 5035/Mod 8015  TPH – GRO  Water <sup>(3)</sup> 5035/Mod 8015  TPH – GRO  Volatile Organics  Volatile Organics  DEN-RAD-0009  Gamma Emitting Radionuclides  DEN-RAD-0004  Americium, Plutonium, Thorium, and Uranium by Alpha Spectrometry  DEN-RAD-0005  DEN-RAD-0005  Calibration, Use and Maintenance of the Alpha Spectrometer	3050B/6020	TAL Metals <sup>(4)</sup>	Solids <sup>(3)</sup>
3510C/Mod 8015 3550B/Mod 8015 TPH – DRO Solids <sup>(3)</sup> 5030B/Mod 8015 TPH – GRO Water <sup>(3)</sup> 5035/Mod 8015 TPH – GRO Water <sup>(3)</sup> 5035/Mod 8015 TPH – GRO Solids <sup>(3)</sup> 5030B/8260B Volatile Organics Solids <sup>(3)</sup> DEN-RAD-0009 Gamma Emitting Radionuclides DEN-RAD-0009 DEN-RAD-0004 Americium, Plutonium, Thorium, and Uranium by Alpha Spectrometry DEN-RAD-0004 Americium, Plutonium, Thorium, and Uranium by Alpha Spectrometry  DEN-RAD-0005 Calibration, Use and Maintenance of the Alpha Spectrometer	9060	Total Organic Carbon	Water <sup>(3)</sup>
3550B/Mod 8015 5030B/Mod 8015 TPH – GRO Water <sup>(3)</sup> 5035/Mod 8015 TPH – GRO Solids <sup>(3)</sup> 5030B/8260B Volatile Organics Water <sup>(3)</sup> 5035/8260B Volatile Organics Solids <sup>(3)</sup> DEN-RAD-0009 Gamma Emitting Radionuclides DEN-RAD-0009 DEN-RAD-0004 Americium, Plutonium, Thorium, and Uranium by Alpha Spectrometry DEN-RAD-0004 Americium, Plutonium, Thorium, and Uranium by Alpha Spectrometry  DEN-RAD-0005 Calibration, Use and Maintenance of the Alpha Spectrometer	9060 Mod	Total Organic Carbon	Solids <sup>(6)</sup>
5030B/Mod 8015  TPH - GRO  TPH - GRO  TPH - GRO  TPH - GRO  Solids <sup>(3)</sup> 5030B/8260B  Volatile Organics  Water <sup>(3)</sup> 5035/8260B  Volatile Organics  Solids <sup>(3)</sup> DEN-RAD-0009  Gamma Emitting Radionuclides  DEN-RAD-0009  Gamma Emitting Radionuclides  Solids <sup>(6)</sup> DEN-RAD-0004  Americium, Plutonium, Thorium, and Uranium by Alpha Spectrometry  DEN-RAD-0004  Americium, Plutonium, Thorium, and Uranium by Solids <sup>(6)</sup> Alpha Spectrometry  DEN-RAD-0005  Calibration, Use and Maintenance of the Alpha Spectrometer	3510C/Mod 8015	TPH – DRO	
5035/Mod 8015  TPH - GRO <sup>(7)</sup> Solids <sup>(3)</sup> 5030B/8260B  Volatile Organics  Water <sup>(3)</sup> 5035/8260B  Volatile Organics  Solids <sup>(3)</sup> DEN-RAD-0009  Gamma Emitting Radionuclides  DEN-RAD-0009  Gamma Emitting Radionuclides  Solids <sup>(6)</sup> DEN-RAD-0004  Americium, Plutonium, Thorium, and Uranium by Alpha Spectrometry  DEN-RAD-0004  Americium, Plutonium, Thorium, and Uranium by Solids <sup>(6)</sup> Alpha Spectrometry  DEN-RAD-0005  Calibration, Use and Maintenance of the Alpha Spectrometer	3550B/Mod 8015	TPH – DRO	Solids <sup>(3)</sup>
5030B/8260BVolatile OrganicsWater (3)5035/8260BVolatile OrganicsSolids (3)DEN-RAD-0009Gamma Emitting RadionuclidesWater (6)DEN-RAD-0009Gamma Emitting RadionuclidesSolids (6)DEN-RAD-0004Americium, Plutonium, Thorium, and Uranium by Alpha SpectrometryWater (6)DEN-RAD-0004Americium, Plutonium, Thorium, and Uranium by Alpha SpectrometrySolids (6)DEN-RAD-0005Calibration, Use and Maintenance of the Alpha SpectrometerNA (6)	5030B/Mod 8015	TPH – GRO	Water <sup>(3)</sup>
5035/8260B Volatile Organics Solids <sup>(3)</sup> DEN-RAD-0009 Gamma Emitting Radionuclides Water <sup>(6)</sup> DEN-RAD-0009 Gamma Emitting Radionuclides Solids <sup>(6)</sup> DEN-RAD-0004 Americium, Plutonium, Thorium, and Uranium by Alpha Spectrometry DEN-RAD-0004 Americium, Plutonium, Thorium, and Uranium by Solids <sup>(6)</sup> Alpha Spectrometry DEN-RAD-0005 Calibration, Use and Maintenance of the Alpha NA <sup>(6)</sup> Spectrometer	5035/Mod 8015	TPH - GRO <sup>(7)</sup>	
DEN-RAD-0009 Gamma Emitting Radionuclides Water <sup>(6)</sup> DEN-RAD-0009 Gamma Emitting Radionuclides Solids <sup>(6)</sup> DEN-RAD-0004 Americium, Plutonium, Thorium, and Uranium by Alpha Spectrometry  DEN-RAD-0004 Americium, Plutonium, Thorium, and Uranium by Solids <sup>(6)</sup> Alpha Spectrometry  DEN-RAD-0005 Calibration, Use and Maintenance of the Alpha NA <sup>(6)</sup> Spectrometer	5030B/8260B	Volatile Organics	
DEN-RAD-0009  DEN-RAD-0004  Americium, Plutonium, Thorium, and Uranium by Alpha Spectrometry  DEN-RAD-0004  Americium, Plutonium, Thorium, and Uranium by Solids <sup>(6)</sup> Alpha Spectrometry  DEN-RAD-0005  Calibration, Use and Maintenance of the Alpha Spectrometer	5035/8260B	Volatile Organics	Solids <sup>(3)</sup>
DEN-RAD-0004  Americium, Plutonium, Thorium, and Uranium by Alpha Spectrometry  DEN-RAD-0004  Americium, Plutonium, Thorium, and Uranium by Alpha Spectrometry  DEN-RAD-0005  Calibration, Use and Maintenance of the Alpha Spectrometer	DEN-RAD-0009	Gamma Emitting Radionuclides	
Alpha Spectrometry  DEN-RAD-0004  Americium, Plutonium, Thorium, and Uranium by Alpha Spectrometry  DEN-RAD-0005  Calibration, Use and Maintenance of the Alpha Spectrometer	DEN-RAD-0009	Gamma Emitting Radionuclides	
DEN-RAD-0004 Americium, Plutonium, Thorium, and Uranium by Solids <sup>(6)</sup> Alpha Spectrometry  DEN-RAD-0005 Calibration, Use and Maintenance of the Alpha NA <sup>(6)</sup> Spectrometer	DEN-RAD-0004	Americium, Plutonium, Thorium, and Uranium by	Water <sup>(6)</sup>
DEN-RAD-0005  Alpha Spectrometry Calibration, Use and Maintenance of the Alpha Spectrometer  NA <sup>(6)</sup>		Alpha Spectrometry	
DEN-RAD-0005 Calibration, Use and Maintenance of the Alpha NA <sup>(6)</sup> Spectrometer	DEN-RAD-0004	Americium, Plutonium, Thorium, and Uranium by	Solids <sup>(6)</sup>
Spectrometer		Alpha Spectrometry	4.00
	DEN-RAD-0005	Calibration, Use and Maintenance of the Alpha	$NA^{(6)}$
DEN DAD 0007 Padium 226 in Water by Presinitation and CEDC Water (6)		Spectrometer	
DEN-KAD-0007 Kadiuni-220 iii water by Pieciphanon and GFPC water	DEN-RAD-0007	Radium-226 in Water by Precipitation and GFPC	Water <sup>(6)</sup>
Counting		Counting	4.00
DEN-RAD-0003 Gas Flow Proportional Counter – Calibration, NA <sup>(6)</sup>	DEN-RAD-0003	Gas Flow Proportional Counter – Calibration,	$NA^{(6)}$
Usage, and Maintenance		Usage, and Maintenance	

Remarks:

- 1) Sample preparation methods have been added to reflect program policy change.
- 2) 'Solids' includes soils, sediments, and solid waste.
- 3) The laboratory has successfully analyzed a Proficiency Testing (PT) sample for this method/matrix.
- 4) TAL Metals: Aluminum, antimony, arsenic, barium, beryllium, cadmium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, mercury, nickel, potassium, selenium, silver, sodium, thallium, vanadium, and zinc.
- 5) Anions: Chloride, fluoride, sulfate, nitrate, nitrite, and ortho-phosphate.
- 6) Approval for this parameter is based on review of SOPs only.
- 7) Approval is for Method 5035 medium-level (methanol extraction) method only.

Report. Only radiological parameters were evaluated during the on-site inspection. Your laboratory has responded to the deficiencies as noted in the report. No further responses are necessary.

Approval for chemical parameters was previously established and was based on acceptable past performance, successful analysis of the National Environmental Laboratory Accreditation Conference Proficiency Testing samples and review of SOPs and laboratory Quality Management documentation. Approval for radiological parameters is based on review of the laboratory's SOPs; the results of the laboratory inspection, the Corrective Action Report, and the laboratory's analysis of Performance Evaluation samples from commercial suppliers and for the DOE Quality Assessment Program (QAP). The evaluation, which was conducted for your facility, is based substantially on ISO Guide 25 (General Requirements for the Competence of Testing Laboratories) and USACE Engineering Manual (EM) 200-1-3, Appendix I (Shell for Analytical Chemistry Requirements). The period of validation has been previously established and expires on September 14, 2006.

The USACE reserves the right to conduct additional laboratory inspections or to suspend validation status for any or all of the listed parameters if deemed necessary. It should be noted that your laboratory may not subcontract USACE analytical work to any other laboratory location without the approval of this office. This laboratory validation does not guarantee the delivery of any analytical samples from a USACE Contracting Officer Representative.

Any questions or comments can be directed to Dr. Jan Dunker at (402) 697-2566.

Sincerely,

Marcia C. Davies, Ph.D. Director, USACE Hazardous, Toxic and Radioactive Waste Center of Expertise

**Enclosure**